

TESTING OF BROND-3 EVALUATIONS FOR FISSION PRODUCTS

Anatoly V. Ignatyuk, Vladimir N. Koshcheev, Vasily N. Manohkin, Genady N. Manturov,
Mark N. Nikolaev, Genady Y. Tertychny

Institute of Physics and Power Engineering, 249020 Obninsk, Russia

New evaluations of recommended neutron cross sections were performed for ruthenium, palladium, neodymium, and samarium isotopes included in the list of the most important fission-products. On the basis of these evaluations, the modified previous BROND-2 and FOND-2.2 files, and the revised files, recommended by the WPEC Subgroup 21, the new version of the BROND-3 library for fission products was compiled. The testing of BROND-3 files through available experimental benchmarks for fast reactors including some new results obtained with the IPPE BFS facility is discussed.

One-group radioactive capture, inelastic scattering and other reaction cross sections were calculated for the typical fast reactor neutron spectrum and compared with similar calculations for ENDF/B-6, JEF-3.0, and JENDL-3.3. A reduction in the spread of data from 5.9% to 1.6% for capture cross sections and from 10% to 5% for inelastic scattering cross sections is achieved relative to the results obtained previously by the WPEC Subgroup 17. The largest deviations for nuclides Pm-147 ($\sim 10\%$), Sm-151 ($\sim 25\%$), Xe-131 ($\sim 10\%$), Ag-109 ($\sim 10\%$), Ru-103 ($\sim 50\%$), Pd-108 ($\sim 20\%$), Xe-132 ($\sim 20\%$) are specially analyzed.